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(54) **A guide groove element for the anchorage of a screen curtain**

(57) A guide groove element for the anchorage of a screen curtain, preferably placed vertically on the outer side of a building, carried out of a housing (1), in which a guide groove (2) is carried out with a centre line (X) coinciding with the direction of gravitation, whereat the guide groove (2) ends in the shape of an inverted heart-like groove (3), whereat the outer wall of the heart-like groove (3) is formed by the housing (1) of the element and the inside wall of the heart-like groove (3) is formed by a central element (4), whereat the central element (4) comprises a movable leg (41) that forms an obtuse angle with the centre line (X) of the guide groove (2), a fixed leg (42) running parallelly to the centre line (X) of the guide groove (2), and a recess (43) disposed opposite to a heart-shaped bulge (8) formed on an inner surface of the outer wall of the heart-like groove (3).

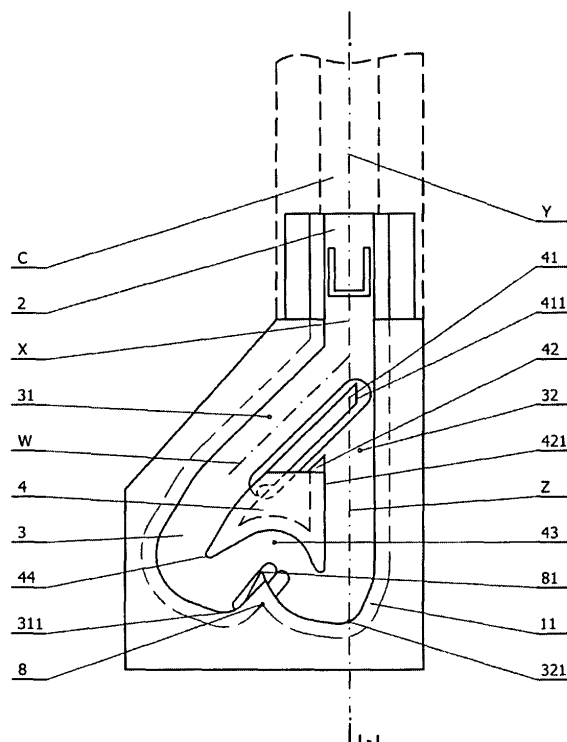


Fig. 1

Description

Subject of Invention

[0001] The subject of the present invention is a guide groove element in a guide means of a sunscreen with a curtain, preferably of a sunscreen placed on the outer side of a building, whereat a plane of the unwound curtain coincides with the direction of gravitation.

Technical Problem

[0002] The technical problem to be solved by the present invention is how to prevent the fluttering of the sunscreen curtain in the lowered position of the vertical sunscreen due to wind or any other factors, whereat the solution should be simple and safe for the user, non-deformable or unbreakable in spite of an incorrect manipulation, usable in manually driven or motor-driven sunscreens, in new ones or, with only small alterations, in already built-in sunscreens. At the same time it should be easy to manufacture with low production costs.

Prior Art

[0003] No solution solving the aforementioned problem is known to the inventor.

[0004] In a common sunscreen with a curtain, one end of the curtain is wound on a rotatable winding bar attached to any basis e.g. to the wall or to the ceiling. The other end of the curtain is free and has a hollow bar with an inserted weight integrated with the free end so that it is perpendicular to the direction of lowering the curtain. The hollow bar is closed at both ends with optionally formed sliders. When the sunscreen curtain is raised or lowered, each slider slides in its basic guide groove placed vertically on a window frame or a window reveal, preferably on the outer side of the window, so that longitudinal axes of the guide grooves are parallel to the direction of lowering the curtain. At unwinding, the curtain i.e. the bar sliders, due to gravitation, slide in the guide groove in the direction of the longitudinal axis of the guide groove. The curtain is unwound or rolled up manually by a crank drive or by motor power. The bar with its weight and the sliders sliding in the guide grooves do not allow the curtain to freely flutter in front of the window.

[0005] When the sunscreen curtain is unwound, its length should be such that the weighted bar hangs just above the window shelf and stretches the curtain with its weight. The length of the unwound curtain is set in a known way at mounting the sunscreen.

[0006] Such a sunscreen curtain is very sensible to wind and, in spite of the weighted bar and the guiding sliders, it flutters already at a relatively low speed of wind. Due to fluttering, the curtain cloth is torn more quickly, the sliders strike against guide grooves and make a disturbing noise that is transmitted to the room across the window frame. Due to the required clearance between

the guide grooves and the sliders, the fluttering can move the sliders out of place and make them stuck, which will necessitate a service intervention.

5 Solution to the Technical Problem

[0007] The described technical problem is solved by a guide groove element according to the invention for the anchorage of a sunscreen curtain, whose essential characteristic is that the guide groove of the element ends in the form of an inverted heart-shaped groove with the guide groove of the element conforming in shape with the basic guide groove of the vertical guide means, in which the slider slides at unwinding and rolling up the curtain, and its centre line being parallel to the direction of gravitation of the slider and the curtain, whereat an outer groove wall is formed by a housing of the element, an inside groove wall is formed by a central element having a movable leg formed as an automatic one-way switch well-defining the sliding of the slider, a fixed leg running parallelly to the centre line of the guide groove, and a recess disposed opposite of a heart-shaped bulge formed on an outer heart-like groove wall on a surface, whose plane is inclined in a slightly sharp angle to the centre line of the guide groove. An inlet groove of the heart-like groove ends in a radius around a rounded edge of the central element, whereat the lowest point of the radius is nearer to the vertical centre line of the guide groove than the centre of the rounded edge. Likewise, the lowest point of the recess of the central element is nearer to the vertical centre line of the guide groove than the tip of the heart-shaped bulge. An outlet groove of the heart-like groove begins with an approximate radius, whose lowest point is spaced for at least one half of the slider radius from the edge of the fixed leg of the central element. It continues at the fixed leg up to the automatic one-way switch closing the outlet groove with its end.

[0008] At the unwinding of the curtain, which can be done manually or by electromotor, due to gravitation the slider slides downwards along the basic guide means, then along the guide groove of the element and continues its way into the open inlet groove of the heart-shaped groove well-defined by the automatic one-way switch of the central element partly closing the outlet groove with its free end. The slider abuts in the radius of the inlet groove. In this moment the sunscreen curtain is unwound, but not stretched. The curtain is then rolled up again and the slider slides across the heart-shaped bulge into the recess of the central element where it is anchored. A further rolling up of the curtain causes the curtain to be stretched. The extent of the curtain stretching depends on the extent of the rolling up of curtain when the slider has been anchored. When the user wishes to roll up the curtain back into the initial state, he first unwinds the curtain and the slider slides, due to gravitation, across the other side of the heart-shaped bulge into the rounded part of the outlet groove. Then the curtain is rolled up, whereat the slider rises and slides at the fixed

leg of the central element, shifts the automatic one-way switch and thereby closes the inlet groove and then slips into the guide groove.

[0009] The guide groove element provides for the stretching of the curtain in a very simple manner and the user does not have to know any limitations or end values. He performs each following step only on the basis of a visual estimation of his previous act and also in the case of a wrong act, the guide groove element according to the invention prevents any harm on any part of the curtain or the sunscreen.

[0010] The present invention will now be described in more detail on the basis of an embodiment and the accompanying drawings in which:

- Fig. 1 shows the elevation of the guide groove element of the invention,
- Fig. 2 shows the cross section of the guide groove element of the invention,
- Fig. 3 shows the guide groove element with the slider and the curtain,
- Fig. 4 shows the elevation from the rear of the guide groove element of the invention.

[0011] A guide groove element for the anchorage of a sunscreen curtain is made of a housing 1, in which a guide groove 2 is carried out, conforming in shape with a basic guide groove C of a sunscreen guide means and with a centre line X coinciding in assembled state with a centre line Y of the basic guide groove C where a slider A slides when a curtain B is unwound or rolled up, which guide groove 2 ends in the shape of an inverted heart-like groove 3, whereat the outer wall of the heart-like groove 3 is formed by the housing 1 of the element and the inside wall of the heart-like groove 3 is formed by a central element 4.

[0012] The heart-like groove 3 comprises an inlet groove 31, whose centre line W forms an obtuse angle with the centre line X of the guide groove 2, and an outlet groove 32, whose centre line Z coincides with the centre line X of the guide groove 2.

[0013] The central element 4 comprises a movable leg 41 parallel to the centre line W of the inlet groove 31, whereat the movable leg 41 is formed as an automatic one-way switch 41 well-defining the sliding of the slider A, a fixed leg 42 running parallel to the centre line X of the guide groove 2, and a recess 43 disposed opposite to a heart-shaped bulge 8 formed on an inner surface of the outer wall of the heart-like groove 3.

[0014] The inlet groove 31 well-defined by the automatic one-way switch 41 ends with an optional radius, whose lowest point 311 is nearer to the centre line X of the guide groove 2 than the centre of an oppositely disposed rounded edge 44 of the central element 4. The outlet groove 32 runs along the fixed leg 42 so that the centre line Z of the outlet groove 32 is parallel to the centre line X of the guide groove 2. The lowest point 321 of the outlet groove 32 is, for at least one half of the slider

A radius, nearer to the centre line X of the guide groove 2 than the surface 421 of the fixed leg 42 forming the inner wall of the outlet groove 32.

[0015] The movable leg 41 is formed as an automatic one-way switch fixed with its one end 411 onto the central element 4. The fixing of the switch 41 is carried out in a material-locking manner so that the cross section is reduced at the place of fixing, whereby the self-flexibility of the switch 41 is ensured. The fixing of the switch 41 can also be carried out in some other optional known manner enabling an oscillation of the switch 41 around the fixing point i.e. a hinge. With its other free end 412, the switch 41 protrudes into the outlet groove 32 and closes it partly. When the slider A passes the switch 41, the latter oscillates around its first end 411, opens the outlet groove 32 and simultaneously closes the inlet groove 31.

[0016] The recess 43 of the central element 4 is, with regard to the heart-shaped bulge 8, disposed so that the centre point of the radius of the recess 43 is closer to the centre line X of the guide groove 2 than a tip 81 of the heart-shaped bulge 8.

[0017] The heart-shaped bulge 8 can contain a notch 82 at its inclined side lying closer to the centre line X of the guide groove 2. The rest of the heart-shaped bulge 8 together with the tip 81 forms a leg 83, which is flexible due to its reduced cross section and acts as an additional securing device to prevent the movement of the slider A in an opposite direction.

[0018] The guide groove element has a part of the housing 1 of the guide groove 2, with the centre line X coinciding with the centre line Y of the basic guide groove C, which part is formed as a spring latch 9. The latch 9 helps the guide groove element to set into the basic guide means of the sunscreen.

[0019] To prevent the slider sliding inside of the heart-like groove from being unintentionally extracted from the guide groove element due to the action of external forces, the guide groove comprises an additional securing device in the form of a guiding groove 11 in the housing 1 of the element and in the central element 4, into which groove a tongue formed on the circumference of the slider engages during the sliding.

[0020] The guide groove element can be made of any material or a combination of materials and, depending on the manufacturing process, it can be made in one piece or assembled from several pieces. The way of manufacturing does not influence its features. In the present embodiment of the invention the guide groove element is made of plastic material, preferably of a plastic material resistant to ultraviolet rays.

[0021] The guide groove element is each time inserted into the basic guide means of the sunscreen, held in it with the latch in a shape-locking manner and fixed together with it to a basis, preferably to the outer window frame or reveal, whereat two guide groove elements are placed in respective pairs of guidance means and mirror-designed. A pair of guide groove elements is always placed in the area where the sliders and the weighted

bar are positioned in the condition of the unwound curtain. Though the guide groove element is preferably designed for the usage on outer building surfaces, it can be used anywhere. With a proper guiding of the weighted bar and the sliders, it can be used also in places and positions where the unwound sunscreen curtain and the direction of gravitation are not coplanar.

[0022] It is to be understood that anyone skilled in the art can, on the basis of the description of the invention, carry out also other embodiments of the invention without obviating the substance of the invention as defined in the following claims.

Claims

1. A guide groove element for the anchorage of a screen curtain, preferably placed vertically on the outer side of a building, made of a housing (1) in which a guide groove (2) is carried out with a centre line (X) coinciding with the direction of gravitation, **characterized in that** the guide groove (2) ends in the shape of an inverted heart-like groove (3), whereat the outer wall of the heart-like groove (3) is formed by the housing (1) of the element and the inside wall of the heart-like groove (3) is formed by a central element (4), whereat the heart-like groove (3) comprises an inlet groove (31), whose centre line (W) forms an obtuse angle with the centre line (X) of the guide groove (2), and an outlet groove (32), whose centre line (Z) coincides with the centre line (X) of the guide groove (2), whereat the central element (4) comprises a movable leg (41) parallel to the centre line (W) of the inlet groove (31), a fixed leg (42) running parallelly to the centre line (X) of the guide groove (2), and a recess (43) disposed opposite to a heart-shaped bulge (8) formed on an inner surface of the outer wall of the heart-like groove (3).
2. A guide groove element according to the claim 1, **characterized in that** the inlet groove (31) ends with an optional radius, whose the lowest point (311) is nearer to the centre line (X) of the guide groove (2) than the centre of an oppositely disposed rounded edge (44) of the central element (4).
3. A guide groove element according to the claim 1, **characterized in that** the outlet groove (32) has a lowest point (321), which is, for at least one half of the slider radius, nearer to the centre line (X) of the guide groove (2) than the surface (421) of the fixed leg (42).
4. A guide groove element according to the claim 1, **characterized in that** the movable leg (41) is formed as an automatic one-way switch, whereat its one end (411) is fixed onto the central element (4) and its other free end (412) protrudes into the outlet groove (32) and closes it partly.
5. A guide groove element according to the claim 1, **characterized in that** the recess (43) has a radius, whose centre point is closer to the centre line (X) of the guide groove (2) than a tip (81) of the heart-shaped bulge (8).
6. A guide groove element according to the claim 1, **characterized in that** the heart-shaped bulge (8) contains a notch (82) at its inclined side lying closer to the centre line (X) of the guide groove 2.
7. A guide groove element according to the claim 1 or 5, **characterized in that** the heart-shaped bulge (8) is built as a leg (83) forming a securing device.
8. A guide groove element according to the claim 1, **characterized in that** a part of the housing (1) of the guide groove (2) is formed as a spring latch (9).
9. A guide groove element according to the claim 1, **characterized in that** the housing (1) of the element and the central element (4) contain a guiding groove (11).
10. A guide groove element according to any of the preceding claims, **characterized in that** it is made of any material or a combination of materials, preferably of plastic material, preferably of a plastic material resistant to ultraviolet rays.
11. A guide groove element according to any of the preceding claims, **characterized in that** it is made in one piece or assembled from more pieces.
12. A guide groove element according to any of the preceding claims, **characterized in that** it has a mirror-designed counterpart.

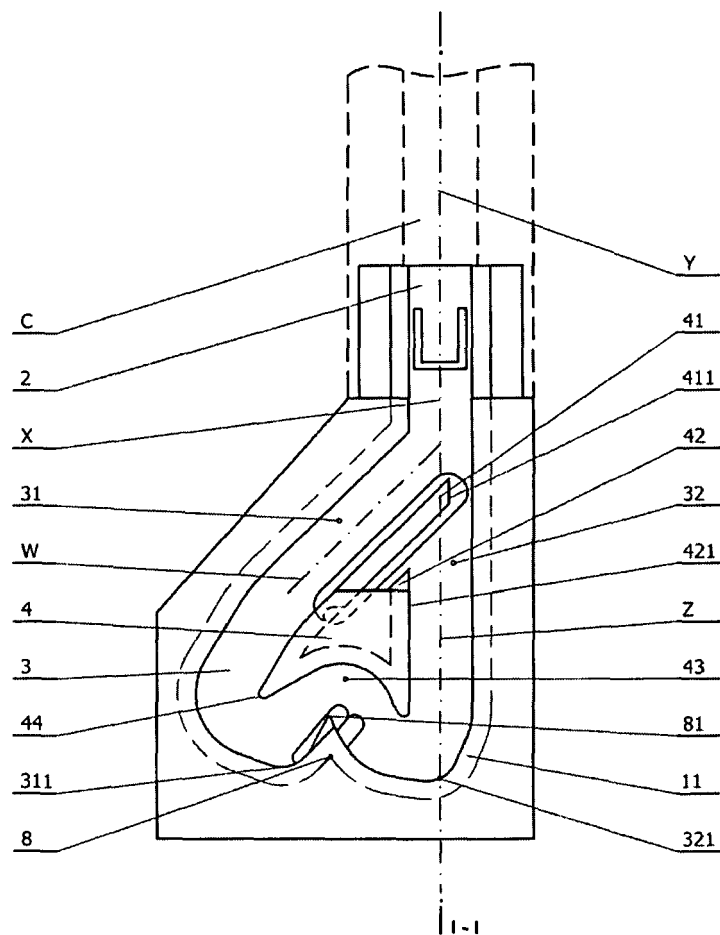


Fig. 1

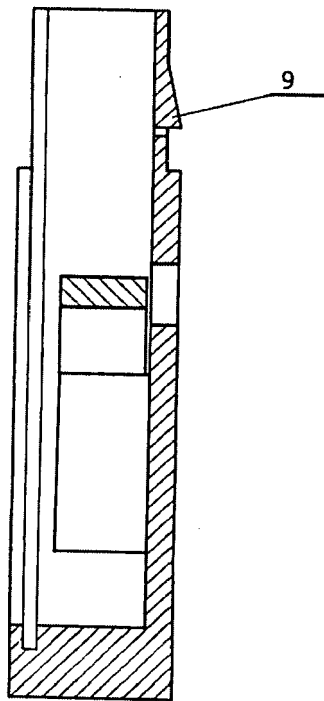


Fig. 2

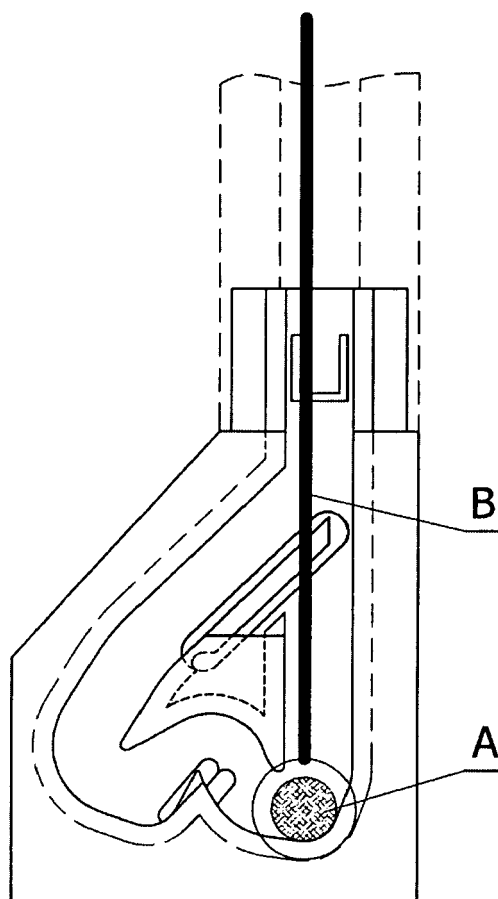


Fig. 3

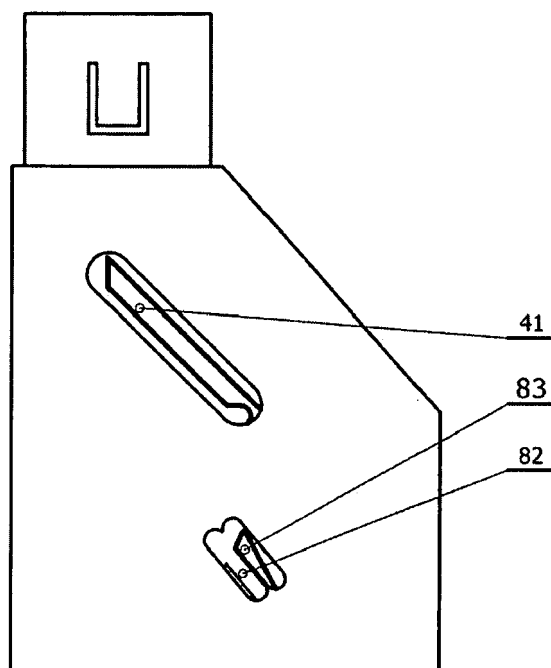


Fig. 4